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(54) **Short range wireless communication**

(57) Systems and methods for a communication system implementing a short range communication link between devices advertising available information and services, and user devices which may initiate a request for further information or services. The communication system provides a low power solution utilizing an optimized combination of a carrier sensing and frequency division multiple access to avoid collisions. The optimization involves the use of a random mean zero value offset appended to the advertising devices' transmission frames. The offset increases the likelihood that a first

advertising device will recognize the transmissions of another advertiser's transmissions (i.e., determining that a channel is busy) and avoid unnecessary transmissions that will result in collisions. Upon recognition, the first advertiser may shift its transmission frame accordingly, thereby avoiding transmission collisions between advertisers. The communication system may be implemented in either a StandAlone LowRate system, or in a device with a pre-existing operational Bluetooth implementation.



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EUROPEAN SEARCH REPORT

Application Number
EP 03 25 4867

DOCUMENTS CONSIDERED TO BE RELEVANT			
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-The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 25 November 2003	Examiner Pasini, E
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 (02.02) (P04C01)



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EUROPEAN SEARCH REPORT

Application Number
EP 03 25 4867

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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<p>-----</p> <p>The present search report has been drawn up for all claims</p>			<p>TECHNICAL FIELDS SEARCHED (Int.Cl.7)</p>
Place of search		Date of completion of the search	Examiner
Munich		25 November 2003	Pasini, E
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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Application Number

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-12, 20, 23



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LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 03 25 4867

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-12, 20,23

Short range wireless communication with transmission of periodic advertisement messages based on the measurement of an energy level on an initialisation channel.

2. claims: 13-19, 21,22

Short range wireless communication using an initialisation channel and a unicast channel.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 03 25 4867

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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25-11-2003

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82